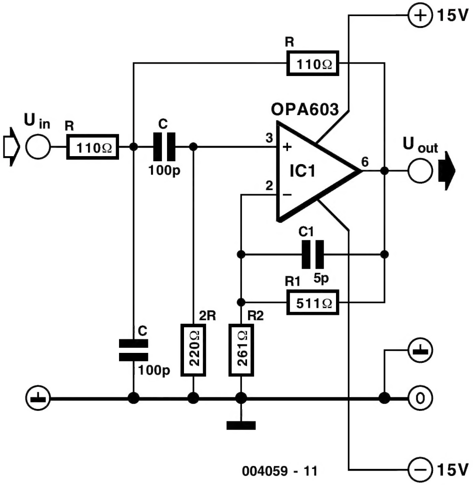
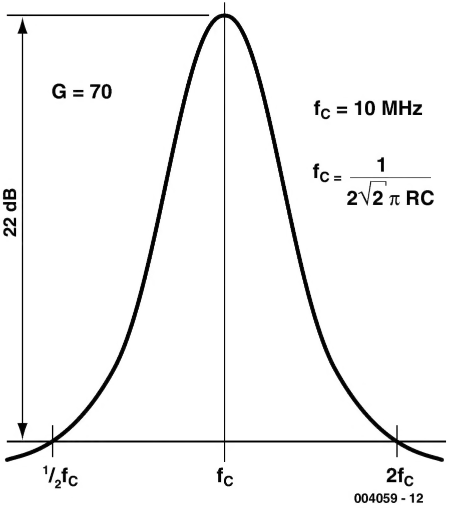
049

Single-Opamp 10-MHz Bandpass Filter

H. Steeman

A bandpass filter is usually used to pass frequencies within a certain frequency range. If a high-performance opamp is used, such a filter can also be used at relatively high frequencies. As shown in the schematic diagram, here we have chosen an OPA603, which is a fast current-feedback opamp with a 100 MHz bandwidth for gain values between 1 and 10 (0 to 20 dB). If the circuit only has to handle a narrow range of frequencies, as in this case, the gain can be increased. With a current-feedback opamp, just as with an ordinary opamp, the negative feedback between the output and the inverting input determines the gain. In addition, the impedance of the feedback network determines the open-loop gain and the frequency response. With the component values shown in the schematic diagram, signals outside the passband are attenuated by 22 dB. The centre frequency of the filter is 10 MHz. As indicated by the printed formula, the centre frequency can easily be altered. However, keep in mind that 10 MHz is roughly the maximum frequency at which this circuit can be used. The circuit can be powered by a supply voltage of ±15 V.





(004059-1)